

REMARKS

Applicant acknowledges receipt of the Office Action dated 21 November 2007, in which the Examiner rejected claims 1, 2, 8, 10, 14, 15, and 20 as anticipated by US Patent 2,998,085 to Dulaney; indicated that claims 13 and 16-19 would be allowable if rewritten in independent form; and indicated that claims 3-7, 9, 11, and 12 are allowed.

Applicants have amended the claims and submit that the case is in condition for allowance for the reasons set out below.

Claim rejections under 35 USC § 102

In rejecting claims 1, 2, 8, 10, 14, 15, and 20 as anticipated by Dulaney, the Examiner states that Dulaney "discloses a rotary percussion (col. 1, lines 7-22) drill bit (col. 3, lines 16-24) having a pair of shear or axially extending blade cutters (24) and an axial cutter (27) arranged to pierce the borehole (fig. 1) prior to and below than the shear cutters (24)." Applicant respectfully disagrees.

Like the Kriesels patent that was cited in the previous Office Action, Dulaney discloses a two-part bit, in which a first part (27) moves up and down relative to a second part (23, 24). For ease of reference, part 27 of Dulaney will be referred to herein as the "chopping bit 27" and parts 23, 24 of Dulaney will be referred to as the "scraping bit 23."

Applicants respectfully submit that the Dulaney bit does not meet the limitations in claim 1 as previously amended. Specifically, the Dulaney bit does not satisfy the limitation in claim 1 that requires that "both of said axial and said shear cutters receive percussive impact." In the Dulaney bit, only "second tool bit 27" (referred to herein as "chopping bit 27") performs the hammering function and therefore only chopping bit 27 receives percussive impact. This places the Dulaney bit outside of the scope of the present claims.

Furthermore, in the bit disclosed by Dulaney, chopping bit 27 cannot be elevated (as shown in Figure 2) until fluid flows through passages 50, into space 47, through passages 43, and into the space (not numbered) beneath valve member 37. It is fluid pressure beneath valve 37 that causes chopping bit 37 to rise. At a certain point, the

coil spring 41 causes valve 37 to stop rising, which in turn causes it to separate from surface 35, which in turn allows the pressurized fluid to escape from beneath the valve, which in turn allows chopping bit 27 to fall and impact the formation. Thus, the chopping operation of chopping bit 27 is a fluid-and-gravity-driven cycle of elevation and dropping. (See col. 2, line 61 to col. 3, line 28).

Importantly, the fluid-driven elevation of chopping bit 27 cannot begin until fluid can flow through passages 50. In Figure 1 of Dulaney, the tool is in its run-in mode, i.e. the bits 23, 27 are "hanging" in the tool, supported by collar 17 at the end of casing 12. Once the scraping bit 23 has hit the bottom of the hole, causing it to move upward relative to casing 12, passages 50 are opened and the cyclical hammering of chopping bit begins. (See col. 2, lines 61-66).

Because scraping bit 23 must be in contact the bottom of the hole before chopping (percussion) begins, it cannot be said that the percussion cutters (chopping bit 27) impact the bottom of the hole "earlier during a percussive impact" than scraping tool bit 23, as required by the present claims.

For all of these reasons, Applicant respectfully submits that claim 1 is in condition for allowance, along with claims 2, 8, 10, and 16-20, which depend from it.

Independent claims 14 and 15 have been amended to incorporate the same limitation regarding percussive impact that was previously added to claim 1 and is discussed

Allowable claims

The Examiner indicated that claims 3-7, 9, and 11-2 are allowed and indicated that claims 13 and 16-19 would be allowable if re-written in independent form.

Claims 10 and 16-19 have not been amended but Applicant submits that they are allowable and in condition for allowance for the reasons set out above with respect to claim 1.

Citation of Reference

The reference cited in the Office action, US Patent 7,104,344 to Kriesels, does not appear to have been cited on a Form 1149 (by Applicant) or Form 892 (by

Examiner). In order that the reference be made of record in the present case, Applicant respectfully requests that the Examiner include it on a Form 892.

Concluding remarks

Applicant believes that every ground for objection and rejection raised in the Office Action has been addressed. Applicant therefore respectfully requests that the amendments be entered and submits that the application is now in condition for allowance.

In the event the Examiner has any questions or issues regarding the present application, he is invited to telephone the undersigned prior to the issuance of any written action.

Respectfully submitted,
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